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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,594	01/22/2004	Harry H. Hong	P-US058-A-MF	7731
32107	7590	04/05/2006	EXAMINER	
MICROFABRICA INC. ATT: DENNIS R. SMALLEY 7911 HASKELL AVENUE VAN NUYS, CA 91406			WOLLSCHLAGER, JEFFREY MICHAEL	
			ART UNIT	PAPER NUMBER
			1732	

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/763,594

Applicant(s)

HONG, HARRY H.

Examiner

Jeff Wollschlager

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 11-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-10, drawn to a method of forming a conformable mask, classified in class 264, subclass 400.
- II. Claims 11-20, drawn to a method of forming a conformable mask, classified in class 264, subclass 400.

The inventions are distinct, each from the other, for the following reasons:

Inventions I and II are directed to related processes. The related inventions are distinct if the inventions as claimed do not overlap in scope, i.e., are mutually exclusive; the inventions as claimed are not obvious variants; and the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect. See MPEP § 806.05(j). In the instant case, the inventions have materially different modes of operation. Invention I requires the application of a liquid composition to a support structure, curing the liquid to form a solidified, flexible member, and laser ablating selected portions of the member. Invention II begins with a cured sheet of material, bonding the sheet to a support structure, and laser ablating selected portions of the member.

Because these inventions are independent or distinct for the reasons given above and the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Dennis Smalley on March 21, 2006 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-10. Affirmation of this election must be made by applicant in replying to this Office action. Claims 11-20 are withdrawn from further consideration by the examiner, pursuant to 37 CFR 1.142(b), as being drawn to a non-elected invention.

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims and specification refer to "R" without defining the structure. For the purposes of examination "R" is read to be hydrogen or any carbon based radical. Additionally, the claims and specification refer to "flexible

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cyclic molecules". The bounds of this phrase are unclear. For the purpose of examination, "flexible cyclic molecules" are read to be any molecule comprising a closed ring structure. This rejection may be overcome by providing evidence, without adding new matter to the specification, which refutes the examiner's interpretation or by concurring with the examiner's interpretation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen (U.S. Patent 6,027,630; issued February 22, 2000) in view of Lien et al. (U.S. Patent 4,528,081; issued July 9, 1985).

Claim 1 is directed to a method of forming a conformable mask comprising a) applying a liquid composition, to a desired thickness, to a support structure, b) curing the composition to form a solidified and flexible member, and c) laser ablating a selected portion of the flexible member to form a patterned mask comprising at least one opening extending through the flexible member. The liquid composition comprises i.) a first component comprising molecules having at least one aromatic ring attached to a silicone backbone that possesses a plurality of SiH functional groups, ii) a second

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component comprising molecules having a ring structured polyimide with a plurality of double bond functional groups, and iii) a catalyst.

Cohen teaches a method of forming a conformable mask comprising a) applying a liquid composition, to a desired thickness, to a support structure, b) curing the composition to form a solidified and flexible member, and c) laser ablating a selected portion of the flexible member to form a patterned mask comprising at least one opening extending through the flexible member (col. 12, lines 12-22; Figure 8). Cohen does not teach that the liquid composition of the conformable mask is the same as the composition of claim 1.

However, Lien et al. teach a liquid composition for forming elastomers suitable for potting and encapsulating electrical devices that have excellent thermal stability, low temperature flexibility, and high dielectric strength (col. 1, lines 10-13 and lines 50-55). The composition of the liquid comprises i.) a first component comprising molecules having at least one aromatic ring attached to a silicone backbone that possesses a plurality of SiH functional groups (col. 2, lines 6-26 and col. 3, lines 55-60), where R1 and R2 are hydrogen and phenyl ; ii) a second component comprising molecules having a ring structured polyimide with a plurality of double bond functional groups, namely triallyl-S-triazine-2,4,6(1H,3H,5H)-trione, (col. 3, lines 34-38); and iii) a catalyst (col. 2, lines 49-59).

Therefore it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the claimed invention to take the method of Cohen and modify the liquid composition to that taught by Lien et al. because the method of Cohen describes

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the requirements for a material to be suitable for a conformable contact mask. These requirements include properties such as the material being elastomeric and having a high electrical resistivity (col. 5, line 25 – col. 6, line 17). The material taught by Lien et al. meets these criteria. Further, Lien et al. declare the suitability of their material for electrical applications, specifically encapsulation (col. 1, lines 10-13). The conformable contact mask, analogously encapsulates the support structure. As a result, the invention as a whole is rendered obvious over the combined teachings of the prior art.

As to claim 2, Lien et al. teach that a third component having an aromatic ring backbone with a plurality of double bond functional groups may be utilized in the liquid composition (col. 3, lines 5-34). Diethoxyacetophenone is exemplified (col. 3, line 10).

As to claim 3, Lien et al. further teach that a fourth component comprising molecules having an aromatic ring backbone with a plurality of SiH functional groups may be employed (col. 3, lines 10-12 (mixtures); and col. 3, lines 25-34).

As to claim 4, platinum catalysts are well known in the art. Further, Lien et al. disclose a platinum catalyst (col. 1, lines 26-33).

As to claim 5, Lien et al. teach elevating the temperature of the liquid composition during curing (col. 4, lines 27-31).

Claim 6 is directed to a method of forming a conformable mask comprising a) applying a liquid composition, to a desired thickness, to a support structure, b) curing the composition to form a solidified and flexible member, and c) laser ablating a selected portion of the flexible member to form a patterned mask comprising at least one opening extending through the flexible member. The liquid composition comprises

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i.) a first component comprising molecules having a silicone backbone and a plurality of SiH functional groups and having a plurality of organic compatibility enhancing groups having structure R, ii) a second component comprising flexible cyclic molecules having a plurality of double bond functional groups, and iii) a catalyst.

Cohen teaches a method of forming a conformable mask comprising a) applying a liquid composition, to a desired thickness, to a support structure, b) curing the composition to form a solidified and flexible member, and c) laser ablating a selected portion of the flexible member to form a patterned mask comprising at least one opening extending through the flexible member (col. 12, lines 12-22; Figure 8). Cohen does not teach that the liquid composition of the conformable mask is the same as the composition of claim 6.

However, Lien et al. teach a liquid composition for forming elastomers suitable for potting and encapsulating electrical devices that have excellent thermal stability, low temperature flexibility, and high dielectric strength (col. 1, lines 10-13 and lines 50-55). The composition of the liquid comprises i.) a first component comprising molecules having a silicone backbone and a plurality of SiH functional groups and having a plurality of organic compatibility enhancing groups having structure R, (col. 3, line 53-60 where R1 and R2 are hydrogen and phenyl) ii) a second component comprising flexible cyclic molecules having a plurality of double bond functional groups, (col. 3, lines 34-40) and iii) a catalyst (col. 2, lines 49-59).

Therefore it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the claimed invention to take the method of Cohen and modify the

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liquid composition to that taught by Lien et al. because the method of Cohen describes the requirements for a material to be suitable for a conformable contact mask (col. 5, line 25 – col. 6, line 17) including requirements such as being elastomeric and having high electrical resistivity. The material taught by Lien et al. meets these criteria. Further, Lien et al. declare the suitability of their material for electrical applications, specifically encapsulation (col. 1, lines 10-13). The conformable contact mask, analogously encapsulates the support structure.

As to claim 7, Lien et al. teach a third component comprising molecules having a plurality of SiH functional groups and having a structure compatible with R (col. 3, lines 25-34).

As to claim 8, Lien et al. teach a fourth component comprising radiation absorbing molecules having a plurality of double bond functional groups and having a structure compatible with R (col. 3, lines 5-12). Diethoxyacetophenone is exemplified (col. 3, line 10).

As to claim 9, platinum catalysts are well known in the art. Further, Lien et al. disclose a platinum catalyst (col. 1, lines 26-33).

As to claim 10, Lien et al. teach that the molecules having a plurality of double bond functional groups and having a structure compatible with R comprises a plurality of structures compatible with R (col. 2, lines 6-26). R1 – R5, in the composition taught by Lien et al., may be a plurality of different radicals.

Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen (U.S. Patent 6,027,630; issued February 22, 2000) in view of Lee et al. (U.S. Patent 6,124,407; issued September 26, 2000).

Claim 6 is directed to a method of forming a conformable mask comprising a) applying a liquid composition, to a desired thickness, to a support structure, b) curing the composition to form a solidified and flexible member, and c) laser ablating a selected portion of the flexible member to form a patterned mask comprising at least one opening extending through the flexible member. The liquid composition comprises i.) a first component comprising molecules having a silicone backbone and a plurality of SiH functional groups and having a plurality of organic compatibility enhancing groups having structure R, ii) a second component comprising flexible cyclic molecules having a plurality of double bond functional groups, and iii) a catalyst.

Cohen teaches a method of forming a conformable mask comprising a) applying a liquid composition, to a desired thickness, to a support structure, b) curing the composition to form a solidified and flexible member, and c) laser ablating a selected portion of the flexible member to form a patterned mask comprising at least one opening extending through the flexible member (col. 12, lines 12-22; Figure 8). Cohen does not teach that the liquid composition of the conformable mask is the same as the composition of claim 6.

However, Lee et al. teach a liquid composition for forming elastomers with a low dielectric constant (col. 4, lines 22-46). The composition of the liquid comprises i.) a first component comprising molecules having a silicone backbone and a plurality of SiH

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functional groups and having a plurality of organic compatibility enhancing groups having structure R, (col. 8, lines 7-15, a dimethylmethylhydrogensiloxane component of component C) ii) a second component comprising flexible cyclic molecules having a plurality of double bond functional groups (col. 5, lines 34-42), and iii) a catalyst (col. 11, lines 18-32).

Therefore it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the claimed invention to take the method of Cohen and modify the liquid composition to that taught by Lee et al. because the method of Cohen describes the requirements for a material to be suitable for a conformable contact mask (col. 5, line 25 – col. 6, line 17) including requirements such as being elastomeric and having high electrical resistivity. The material taught by Lee et al. clearly meets these criteria. Further, Lee et al. provide additional reasons to choose this composition for masking applications, including its workability, its lack of toxicity, its lack of a solvent, and its low dielectric constant (col. 3, lines 65-col. 4, line 45). Clearly, one of ordinary skill would be motivated to use this elastomer in the method taught by Cohen to form a flexible conformable contact mask.

As to claim 7, Lee et al. teach a third component comprising molecules having a plurality of SiH functional groups and having a structure compatible with R (col. 8, lines 7-15, a polymethylhydrogensiloxane component of component C).

As to claim 8, Lee et al. teach a fourth component comprising radiation absorbing molecules having a plurality of double bond functional groups and having a structure compatible with R (col. 5, lines 48-60).

As to claim 9, the catalyst taught by Lee et al. is a platinum catalyst (col. 11, lines 18-32).

As to claim 10, Lee et al. teach that the molecules having a plurality of double bond functional groups and having a structure compatible with R comprises a plurality of structures compatible with R (col. 5, lines 18-20 and col. 6, lines 23-25).

Conclusion

All claims are rejected.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent 6,774,493 to Capote et al.

U.S. Patent Application Publication 2004/0029043 by Wakizaka et al.

U.S. Patent Application Publication 2004/0137153 by Thomas et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on 571-272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JW

Jeff Wollschlager
Examiner
Art Unit 1732

March 27, 2006

A handwritten signature in black ink, appearing to read "Michael P. Colaianni", with a long horizontal flourish extending to the right.

MICHAEL P. COLAIANNI
SUPERVISORY PATENT EXAMINER